5. Release Notes - Version 15

5.1 Gridgen Version 15.19 - Release Date: TBD

There are currently no new technical issues resolved in V15.19:

5.2 Gridgen Version 15.18 - Release Date: August 2012

The following is a list of technical issues resolved in V15.18:

SPR 10904

Resolved an issue where setting the rotation point ended with a different location being selected.

SPR 14385

Fixed an issue where a crash occurred creating a T-Rex block.

SPR 14407

Corrected a problem causing transfer of a Gridgen restart file to Pointwise to fail and assert.

SPR 14415

Fixed a problem in the SUGGAR output file for overset computations.

SPR 14496

Resolved a problem preventing sufficient anisotropic tetrahedral recombination.

SPR 14518

Resolved an issue causing inconsistent tets on opposite sides of a symmetry boundary.

SPR 14538

Fixed a problem causing T-Rex to repeat layer marching in the solver.

SPR 14656

Corrected an issue preventing T-Rex meshing for fronts containing structured domains.

SPR 14793

Resolved a problem causing V15.17 to recombine fewer prisms than V15.16.

SPR 14905

Corrected an issue which caused many errors to be generated when saving large unstructured blocks.

SPR 14939

Fixed a Glyph problem preventing the 64-bit tetrahedral mesher from being called on 64-bit systems.

SPR 14944

Resolved an error causing a crash when selecting domains for face assembly.

SPR 14954

Corrected a block initialization issue reporting “could not import tets.”

SPR 14977

Fixed an issue in the Examine command which caused the Crinkle Cut feature to produce errors.

SPR 15019

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Improved prism recombination by providing more control over volume checking.

SPR 15071

Added pyramid and prism quality checking via the Gauss-Green volume formulation.

SPR 15084

Resolved a problem preventing import of a Gridgen restart in Pointwise.

SPR 15195

Corrected an issue resulting in combined pyramids and prisms with negative faces.

SPR 15226

Improved pyramid collision adjustment to distribute changes more evenly on both sides of the collision.

SPR 15300

Fixed a problem causing a hang up following aniso layer generation.

SPR 15367

Resolved an issue causing inconsistent extraction of prism layers.

5.3 Gridgen Version 15.17 - Release Date: March 2011

The following is a list of new features included in V15.17:

1. Gridgen now allows baffles to be selected in T-Rex for layer growth or other boundary types.
2. Gridgen can now run connected T-Rex blocks simultaneously in the unstructured solver.

The following is a list of technical issues resolved in V15.17:

SPR 11496

Resolved an issue where anisotropic triangles could not be created off of a sharp edge.

SPR 12045

Resolved an issue preventing successful anisotropic domain initialization.

SPR 12666

Fixed an issue causing poor anisotropic cells to grow off of a connector edge.

SPR 13566

Corrected a problem causing rapid growth of anisotropic cells in concave regions.

SPR 13593

Resolved the block re-specify issue preventing updates of block computational coordinates after a block had been saved.

SPR 13754

Corrected the calculation of angle skewness for Examine.

SPR 13776

Structured domains in a T-Rex front prevented the front from advancing.

SPR 13786

Solved a problem causing domains to disappear after saving from the unstructured solver.

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SPR 13787

Fixed a problem causing blocks to appear after all blocks were deleted and a restart saved.

SPR 13918

Corrected a recombination issue for T-Rex blocks.

SPR 14194

Updated the centroid skewness metric used in T-Rex.

5.4 Gridgen Version 15.16 - Release Date: August 2010

The following is a list of new features included in V15.16:

1. Gridgen is now available as a universal binary for Intel and PPC Macs running versions 10.4 and higher.
2. PLOT3D support has been extended to allow i-blanking, byte-order swapping, and single-block grids.
3. Overset assembly programs Pegasus and SUGGAR can now be setup and run directly from Gridgen.
4. Overset assembly data can be imported into Gridgen where orphan and fringe points can be visualized.
5. An overset tutorial on a wing-pylon geometry with a store is now available.
6. Pointwise CAE export can now create prisms by recombination for anisotropic tetrahedral meshes generated in Gridgen that contain multiple normals on sharp corners.
7. Pointwise CAE export can now create prisms by recombination for anisotropic tetrahedral meshes generated in Gridgen that contain pyramids.

The following is a list of technical issues resolved in V15.16:

SPR 13146

Resolved an issue in which exporting baffles to CFX produced an error message in the Gridgen console window.

SPR 12821

Fixed a bug that was causing Gridgen to exit prematurely when a particular anisotropic tetrahedral block was initialized.

SPR 12359

When exporting over ten million nodes to Splitflow, an issue was found with the format of the resulting Splitflow file. Logic has been changed to correct this problem.

SPR 12336

Resolved an issue in which the Examine command was showing incorrect values for the minimum included skewness angle for pyramids.

SPR 12301

Fixed a bug that caused connectivity issues in a CGNS file exported from Pointwise containing prisms formed from prism recombination.

SPR 12300

Corrected the decimation of cells near a symmetry plane in an unstructured anisotropic tetrahedral block.

SPR 12223

Fixed a bug that caused Gridgen to exit prematurely if a surface of revolution was intersected with a bi-linear surface.

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SPR 12193

Resolved an issue in which a cell spike was created within an unstructured domain.

SPR 11292

Fixed a bug that caused Gridgen to exit prematurely when connectors that were part of an existing unstructured domains and blocks were redimensioned.

SPR 11087

Fixed a problem that caused an anisotropic tetrahedral block to fail to initialize due to intersecting tetrahedra.

SPR 10883

Resolved an issue that caused poor quality cells to be created in a block that was copied and rotated.

5.5 Gridgen Version 15.15 - Release Date: November 2009

The following is a list of new features included in V15.15:

1. Improvements were made to the unstructured block solver so that anisotropic tetrahedral cells, when generated by Gridgen and exported by Pointwise to CGNS, now recombine up to 40% more prisms over the previous versions of Gridgen and Pointwise.

The following is a list of technical issues resolved in V15.15:

SPR 12003

Resolved an issue that caused zero volume cells to be produced when an anisotropic tetrahedral block was initialized.

SPR 11934

A bug was fixed that caused the unstructured block solver to pause for a long period of time when initializing a block.

SPR 11901

An issue was fixed that caused negative volumes to be created in an unstructured block.

SPR 11884

Resolved an issue that caused the pyramids generated in the unstructured block solver to have a higher equiangle skew than previous versions of Gridgen.

SPR 11871

A bug was fixed that caused V15.14 to extract less prisms from an anisotropic unstructured block than previous versions of Gridgen.

SPR 11851

A bug was fixed that caused connectivity issues between tetrahedral cells when a certain combination of anisotropic attributes were used within the unstructured block solver.

SPR 11757

Resolved an issue that kept the maximum cell height for an extrusion from being applied correctly when specified in the GUI.

SPR 10949

Fixed an issue that caused all boundary conditions to be removed from a block when an additional face was added.

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SPR 9731

Resolved a bug which allowed a particular STL file to be imported on Windows but not on Linux platforms.

5.6 Gridgen Version 15.14 - Release Date: June 2009

The following is a list of new features included thus far in V15.14:

1. Gridgen 64-bit for Linux workstations is now available.
2. Improvements have been made to the performance of anisotropic triangles and tetrahedra marching out of concave regions.
3. Improvements have been made to the performance of anisotropic triangles and tetrahedra marching off of convex regions.
4. The unstructured domain solver's boundary decay function has been modified to adjust for the inclusion of anisotropic layers in the domain.
5. The unstructured block solver can now extract prisms across multiple anisotropic blocks simultaneously.
6. The unstructured block solver now allows for the insertion of additional points in the isotropic region near a block's final anisotropic layers. These additional points provide greater refinement and transition for regions where anisotropic cell advancement has to stop locally.
7. Gridgen now supports import of Siemens PLM NX 6 and earlier files. Note: The Siemens PLM NX native CAD reader is an optional product.

The following is a list of technical issues resolved thus far in V15.14:

SPR 11652

An bug was resolved that was causing an anisotropic domain's ModTopo setting to be changed to 0 whenever one of the domain's connector's were redimensioned or redistributed.

SPR 11544

Resolved an issue that caused Gridgen to exit prematurely when exporting grid and boundary condition data to a CFD++ file.

SPR 11434

An issue that prevented Gridgen from running on some linux workstations with NVIDIA graphics cards was resolved.

SPR 11372

A bug was resolved that caused a "fan" of cells to be created in certain regions of anisotropic domains.

SPR 11360

Fixed an issue that prevented the volume condition information of an anisotropic block from being propagated into its component tetrahedral and prism blocks during prism extraction.

SPR 11358

A bug which caused the tetrahedral block to be deleted during prism extraction for an anisotropic tetrahedral block has been resolved.

SPR 11307

Resolved a bug which caused Gridgen to exit prematurely when executing a certain Glyph script.

SPR 11298

Fixed an issue that resulted in mismatched cell faces within a CGNS file exported from Gridgen. The CGNS

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file contained tetrahedral and prism blocks that were extracted from an anisotropic block.

SPR 11293

Resolved a bug which kept Gridgen from checking for duplicate domains if prisms were extracted from an anisotropic block whose database was not present.

SPR 11149

An bug that kept blocks resulting from a prism extraction from being numbered properly within the execution of a glyph script was resolved.

SPR 11138

Fixed a bug that caused Gridgen to exit prematurely when importing a particular Unigraphics NX file.

SPR 10840

Resolved an issue that was causing the boundary decay factor for unstructured domains to influence the number of anisotropic layers created.

SPR 8923

A bug which caused the tetrahedral block to be deleted during prism extraction for an anisotropic tetrahedral block has been resolved.

SPR 8373

Resolved an issue that allowed an anisotropic block to be initialized on Linux workstations but not on Windows workstations.

SPR 6999

Corrected an issue with a broken link in the Help documentation for Gridgen.

SPR 6428

Corrected an issue in the Glyph Reference Manual in which the gg::dbSplit command was not referenced in the command index.

5.7 Gridgen Version 15.13 - Release Date: October 2008

The following is a list of new features included V15.13:

1. The enable/disable browser now sorts blocks by their type (structured, unstructured, prism) when sorted by dimension.
2. The ability to extract prism cells from an anisotropic block at any time has been added to the block unstructured solver.

The following is a list of technical issues resolved in V15.13:

SPR 10867

Resolved a bug that caused problems with CGNS files when boundary condition or zone names contained a / mark.

SPR 10727

An issue was fixed which caused poor quality unstructured anisotropic domains to be created on quilts of high curvature.

SPR 10716

An issue was fixed which caused poor quality unstructured domains to be created on quilts of high curvature.

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SPR 10706

A bug was resolved which caused Gridgen to crash when deleting a control point that coincided with the end of a connector.

SPR 10551

Resolved a bug which caused the boundary conditions applied to block interfaces to be reset improperly after merging connectors or domains at the block interface.

SPR 10512

An issue was fixed in which an anisotropic block would not initialize in V15.12 but had in previous versions.

5.8 Gridgen Version 15.12 - Release Date: July 2008

The following is a list of new features included in V15.12:

1. The ability to create anisotropic domains on highly curved surfaces has been added to Gridgen's anisotropic triangle mesher.
2. Support for the Sun Solaris platform has been upgraded to Solaris V8. Prior versions of this operating system will no longer be supported.
3. An upgraded version of Gridgen's tetrahedral mesher is now available. This new version contains improvements to the speed of the anisotropic tetrahedral mesher and the ability to mesh volumes with larger ranges of cell sizes.
4. Export via the CGNS_UNSTR AS/W has been upgraded to CGNS V2.5.
5. Unigraphics NX5 files may now be imported into Gridgen. Note: The Unigraphics native file reader is an optional product.
6. Catia V5 R18 files may now be imported into Gridgen. Note: The Catia V5 native file reader is an optional product.
7. PRO/E Wildfire 4 files may now be imported into Gridgen. Note: The PRO/E native file reader is an optional product.

The following is a listing of technical issues resolved in V15.12:

SPR 10323

An issue that was keeping the point counts from updating in the Blackboard during the initialization of an anisotropic block has been fixed.

SPR 10295

Releasing the volume grid and saving a block after anisotropic initialization caused Gridgen to exit prematurely. Logic has been modified to resolve this problem.

SPR 10235

Fixed a bug which was causing a few anisotropic triangles along an edge to march out further than their neighbors.

SPR 9972

An issue that was keeping a pole domain that had been split from being rejoined has been fixed.

SPR 9639

A bug has been fixed which was causing local grid anomalies for anisotropic domains that were projected onto highly curved surfaces.

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SPR 9611

An issue has been resolved in which a Unigraphics file was not importing into Gridgen properly.

SPR 9461

Resolved a bug in which a particular database constrained prism extrusion caused Gridgen to exit prematurely.

SPR 7584

A bug which caused Gridgen to exit prematurely after importing an IGES file then restarting has been fixed.

5.9 Gridgen Version 15.11 - Release Date: December 2007

The following is a listing of the new features that have been added to V15.11:

1. Gridgen now supports import of CATIA V5 R17 and earlier files. Note: The CATIA V5 native CAD reader is an optional product.
2. Gridgen now supports import of Unigraphics NX4 and earlier files. Note: The Unigraphics native CAD reader is an optional product.
3. Gridgen now supports Native CAD Readers on HP-UX 11.00 platforms.
4. Gridgen now features updated license management software. Note: The new license server in Gridgen V15.11 will require users to obtain a new license that is compatible.
5. The Defaults menu now contains a preference which controls whether the Examine command automatically uses the diagnostic function chosen for the last block or blocks in Examine for any new blocks brought into Examine.
6. Two initial Δs values may now be applied to a domain edge within Gridgen's anisotropic triangle mesher.

The following is a listing of technical issues resolved in V15.11:

SPR 9413

When initializing an anisotropic volume that contained a corrupt domain with a local non-manifold topology, zero volume cells were created outside of the block volume. Logic has been added to correct this issue.

SPR 9380

An issue in which extracting prisms for an anisotropic block containing periodic domains caused Gridgen to exit has been fixed.

SPR 8923

Resolved an issue in which prism extraction for an anisotropic block failed to produce two new blocks.

SPR 8506

A bug has been fixed which caused Gridgen to exit when copying certain database surfaces.

SPR 8333

A bug was fixed in which extracting prisms from an anisotropic block corrupted the resulting blocks.

SPR 8195

Resolved an issue which was causing a database composite file to be imported with multiple errors concerning its trimmed surfaces.

SPR 8172

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An issue was resolved in which anisotropic domain edges set to Isotropic would have highly skewed cells created from those edges.

SPR 8106

A bug which was causing an initialized anisotropic domain to be disassociated with its database entities has been fixed.

SPR 7889

Resolved a bug which caused Gridgen to crash when a cylindrical trimmed surface was copied.

SPR 7870

When reentering Examine for blocks, the previous function used in Examine was not being maintained. A preference has been added to allow users to choose whether it is maintained or not.

SPR 7805

A bug was fixed in which the Layer Height settings were not being accurately applied to the edges of an anisotropic domain.

SPR 7579

Extracting prisms from an anisotropic block were causing the original boundary conditions set on the block to be moved to different faces. Logic has been added to correct this problem.

SPR 7231

Resolved a bug that was causing issues with modifying a copy of a ruled surface with intersections.

SPR 5756

An issue was resolved in which all surfaces from a STEP file were not imported into Gridgen.

5.10 Gridgen Version 15.10 - Release Date: March 2007

The following is a listing of new features included in V15.10:

1. Gridgen's unstructured domain and block solvers now support the creation of anisotropic triangles and tetrahedral cells
2. The import of .nmb files from CAPRI CAE Gateway is now supported.
3. A new diagnostic for measuring minimum component volumes has been added to the Examine command's function list.
4. A new diagnostic for measuring centroid skewness has been added to the Examine command's function list.
5. In the Examine function, cells whose display have been turned off are no longer rendered.
6. In Examine, the function computed for a block is now set to None and the show status for cells in all ranges has been toggled off each time a block is brought into Examine.
7. Gridgen now supports the export of grids in TecPlot's PLT file format.

The following is a listing of technical issues resolved in V15.10:

SPR 6961

A bug was fixed in which Gridgen locked up and printed numerous "GL Error" messages while deleting or scaling domains. This issue occurred on both Linux and SGI platforms.

SPR 6891

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Resolved a bug which caused the playback of a journaled NASTRAN import script to fail.

SPR 6630

Initialization of an unstructured block containing pyramids was causing Gridgen to crash. Logic has been modified to correct this problem.

SPR 6552

Fixed a bug in which the unstructured face normals were being calculated incorrectly for structured domains within the face.

SPR 6505

Gridgen was failing to export CFX input files for grids containing baffles with a Wall boundary condition. Logic has been modified to correct this problem.

SPR 6305

Fixed a bug which caused Gridgen to exit when exporting a grid with periodic boundaries to FLUENT.

SPR 6302

Resolved a problem which was causing a different number of database entities to be reported in V15.09 from V15.07 when the same database file was imported.

SPR 6284

For certain databases, a trimmed surface could not be created from calculated intersection curves. Logic has been added to correct this problem.

SPR 6252

A bug was resolved in which the Browser window radio button would become disabled after using the DB Pick Mask.

5.11 Gridgen Version 15.09 Release 3 - Release Date: June 2006

The following is a listing of technical issues resolved in V15.09 Release 3:

SPR 6227

Resolved a bug which caused Gridgen to hang up when creating connectors using the On DB Entities command.

SPR 6138

A problem was encountered with a database trimmed surface containing a hole with two bounding curves. If the trimmed surface were modified so that the hole bounding curves were excluded, the new trimmed surface could not be saved. Trimmed surface modification has been changed to fix this problem.

SPR 6133

Exporting files for the NPARC flow solver would cause Gridgen to exit if custom boundary conditions were set to reserved boundary condition IDs. Export for NPARC has been modified to correct this problem.

SPR 6132

For FLUENT case files exported from Gridgen, corruption of the file would occur if baffle boundary conditions were present. Logic has been modified to correct this problem.

SPR 6102

A bug has been resolved in which projecting a database line appeared to do nothing. Logic has been added to disable the Project button if no suitable surface entities are available.

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SPR 6034

The Intersecting Pipes (Top Down) tutorial restart file contained within Gridgen had a structured block with a corrupt pole. The restart file has been replaced to fix this problem.

SPR 6033

The Intersecting Pipes (Bottom Up) tutorial restart file contained within Gridgen had a structured block with a corrupt pole. The restart file has been replaced to fix this problem.

SPR 5969

An issue was resolved in which creating a quilt on a particular geometry would cause Gridgen to exit.

SPR 5951

Domain projection onto a quilt was causing Gridgen to exit. Logic has been modified to fix this problem.

SPR 5919

Resolved an export bug for CFD++ which was causing the orientation of 2D grids to produce negative volumes.

SPR 5898

A bug was fixed in which Gridgen would exit when a re-extruded block was saved.

5.12 Gridgen Version 15.09 - Release Date: March 2006

New features included in V15.09 are listed below:

1. Solid model support is now available. Gridgen offers solid modeling by introducing two new database entities, quilts and models, which are hierarchical in structure. Quilts will allow users to form collections of adjoining trimmed surfaces. Models will allow users to form collections of adjoining quilts and trimmed surfaces. Both of these new entity types enable the user to form watertight topological entities for quick and easy meshing. In addition to the creation and modification of models, Gridgen will support the import and export of models as well.
2. Gridgen now supports the ability to mesh solid models.
3. A new Gridgen tutorial on creating and meshing solid models for the DLR-F4 cockpit is now available.
4. A new diagnostic function is now available for database surfaces which displays the closest point distances between the boundaries and surfaces of picked trimmed surfaces, quilts, and models.
5. Gridgen now supports the export of unformatted Cobalt analysis files.
6. Gridgen now supports the export of FV-UNS Version 3 files as well as FV-UNS region files.
7. Gridgen now supports the export of FrontFlow analysis software files.
8. The Gridgen tetrahedral mesher has enhanced error reporting for unstructured volumes that are problematic to initialize.
9. Improvements have been made to the tetrahedral mesher's ability to detect and correct crossing pyramids within an unstructured volume.
10. The PROSTAR "bread" command has been added for export to the START-CD input file. This command will allow BC's assigned within Gridgen to be automatically read into PROSTAR.
11. Gridgen is now supported on AMD Opteron Windows and Linux platforms.
12. Gridgen is now supported on SGI Prism workstations.

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The following is a listing of technical issues resolved in V15.09:

SPR 5730

Resolved an issue that caused Gridgen to hang whenever the From Doms button in the block creation menu.

SPR 5710

The Glyph command gg::dbCurveSmooth was not documented in the Glyph Reference Manual. The manual page for this command has been added.

SPR 5705

Fixed a bug which was causing Gridgen to exit when importing a database composite file containing a model with 0 faces.

SPR 5689

Fixed a bug which was causing the export of files for STAR-CD to fail.

SPR 5686

Resolved a problem that was causing the export of a large Cobalt file to fail.

SPR 5634

Resolved a bug in which the connectivity between structured and unstructured blocks was not being exported correctly for CGNS.

SPR 5334

A problem was resolved in which an unstructured block containing baffle faces was imported into Gridgen as corrupt.

SPR 5331

Fixed a bug which caused Gridgen to exit when importing a database composite file containing a corrupt trimmed surface.

SPR 5311

Resolved a bug which was causing the import of an IGES file to fail in Gridgen V15.08.

SPR 5309

The -extents flag was not documented for the gg::dispViewReset command. The manual page for gg::dispViewReset has been updated in the Glyph Reference Manual to include this flag and its options.

SPR 5306

Using Shift-Right Mouse Button on certain database entities to determine x, y, z coordinates was causing Gridgen to exit. Logic has been modified to resolve this problem.

SPR 5298

Trying to modifying or solve on certain domains created in Gridgen V14 caused Gridgen V15.08 to exit. Logic has been modified to handle these domains.

SPR 5290

Resolved a bug which caused Gridgen to terminate when creating a fit for a database surface.

SPR 5274

Fixed a bug in which the intersection of two groups of database entities caused Gridgen to beep and generate error messages.

SPR 5264

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Resolved a bug in which Gridgen was unable to export the analysis boundary condition file for Cobalt.

SPR 5261

Fixed an issue which caused the graphics fro SGI workstations to either flicker or slow down.

SPR 5257

An issue was found in which all database entities selected for rotation did not rotate at the specified angle. Logic has been added to correct this problem.

SPR 5233

Fixed an issue which caused Gridgen to exit with a memory error when repeatedly entering the structured solver with a subgrid, then aborting.

SPR 5229

Fixed an issue which caused Gridgen to exit when running a domain in the Domain Structured solver which had inappropriate database references.

SPR 5218

Resolved a bug which caused Gridgen to exit when importing a database composite (.dba) file formed from combining several existing database and IGES files.

SPR 5217

Resolved a problem which was preventing a journaled Glyph script from re-executing in Gridgen.

SPR 5209

A problem was resolved in which the DATABASE menu flashed and the cursor jumped during the assignment of database entities to a layer.

SPR 5207

Fixed a bug which, during a rotation of all database entities, over-rotated a set of database curves.

SPR 5201

Resolved an issue in which connection flags for FV-UNS export were not written out correctly.

SPR 5200

The vector for linear projection was not getting updated in the Blackboard during model manipulations. Logic has been modified to correct this problem.

SPR 5199

Fixed an issue that would cause Gridgen to terminate when selecting a database group for copying using Pick: By Text.

SPR 5182

Resolved a bug in which the connector information was not displayed in the Merge Entities: Replace Connectors Blackboard when a connector was highlighted.

SPR 5181

Resolved a bug in which the connector information was not displayed in the Redimension Grids Blackboard when a connector was highlighted.

SPR 5180

Fixed a bug which was keeping the split connector cursor location from being updated in the Display window when manipulated from the keyboard.

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SPR 5129

Information on how to turn on overlays for NVidia cards used in a Linux environment was missing from the Hardware Requirements chapter of the Release Notes. This information has been added.

SPR 5040

A Gridgen restart file containing an unstructured block with baffles imported as corrupt. Logic has been modified to correct this problem.

SPR 4909

Resolved a bug which caused Gridgen to terminate when importing a particular composite database file.

SPR 4798

Resolved a bug in which the end spacings of a connector were a value different than what was specified for them.

SPR 1340

A bug was fixed which caused Gridgen to exit when journaling the extrusion of a domain from an edge.

5.13 Gridgen Version 15.08 - Release Date: July 2005

New features included in V15.08 are listed below:

1. Gridgen's elliptic PDE solver for structured domains and blocks now supports a multigrid algorithm.
2. Unigraphics NX3 files may now be imported into Gridgen. Note: The Unigraphics native file reader is an optional product.
3. The minimum system requirements for Gridgen's HP-UX build on PA-RISC has been upgraded to V11.11.

The following is a listing of technical issues resolved in V15.08:

SPR 5096

Fixed an issue in which the boundary regions for the WIND analysis software were being incorrectly exported from Gridgen.

SPR 5090

Resolved a bug which was causing Gridgen to terminate when joining two structured domains.

SPR 5087

A bug was resolved which was causing Gridgen to hang when attempting to auto-complete a structured domain on a database surface.

SPR 5075

When using the Pick: In Box tool for database entity selection, Gridgen was selecting more entities than those included in the box. Logic has been modified in Gridgen to correct this issue.

SPR 5006

Blackboard text fields for Min Edge Length and Max Edge Length in the unstructured solver were not being updated after volume initialization. Logic has been modified in Gridgen to correct this issue.

SPR 4992

An issue in which Gridgen would hang when projecting a structured domain via closest point projection onto a database surface with a singularity has been resolved.

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SPR 4970

A bug was resolved which was causing Gridgen to exit when exporting an unstructured volume one cell thick for CFD++.

SPR 4955

An issue was found in which modifying the original database constrained connector in a periodic pair removed its database associativity.

SPR 4931

Resolved a bug which was causing a connector in a domain with a fixed surface shape to come off the database to which it was constrained when run through the elliptic solver.

SPR 4883

A problem with moving the zoom box was found to exist on Linux workstations with NVIDIA Quadro graphics cards. Logic has been modified within Gridgen to correct this issue.

SPR 4880

A graphics issue was causing Gridgen to crash whenever the object in the display was rotated. This behavior only occurred on machines with NVIDIA Quadro and Quadro FX graphics cards running the latest display drivers. Logic has been modified in Gridgen's graphic user interface to resolve the issue.

SPR 4878

A problem was resolved which was causing specific WINDUS files exported from Gridgen to fail within WINDUS.

SPR 4803

When setting the Split Angle for Feature Extraction, Gridgen displayed a message indicating that angles from 0 to 180 degrees could be specified. Gridgen only accepts angles *between* 0 and 180 degrees for the split angle. Gridgen's message for this feature has been changed for clarity.

SPR 4464

Resolved an issue in which the periodic connection between a pair of domains was missing in the Analysis Software Set BCs Browser list.

SPR 2420

A bug was resolved which was causing periodic connections and distributions to break when rotated or translated.

5.14 Gridgen Version 15.07 - Release Date: May 2005

New features included in V15.07 are listed below:

1. Gridgen now supports IGES Export.
2. Support has been added for the export of structured domains to an IGES file.
3. Database curves can now be projected onto database surfaces.
4. Trimmed surfaces can now be created and modified in Gridgen.
5. CATIA V5 files may now be imported into Gridgen. Note: The CATIA V5 native file reader is an optional product.
6. Gridgen's block unstructured solver now supports new attributes which provide control over the mini-

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mum and maximum tetrahedra edge lengths. A decay factor is also available which controls how far into a volume the boundary cell sizes are propagated.

7. Gridgen now reads the blank status during IGES file import for all supported database entities except groups.

8. Unstructured domains may now be created on closed or periodic shell surfaces via use of the On DB Ents command.

9. CGNS files are now exported with the .cgns extension.

The following is a listing of technical issues resolved in V15.07:

SPR 4889

When a database constrained BC was applied for a block extrusion, all database entities not involved were disabled. The logic involved in this process has been modified to prevent this from occurring.

SPR 4879

Fixed a graphics issue in V15.07R1 which caused parts of Gridgen's menus and display to flash or disappear. Logic has been added to correct this problem.

SPR 4859

Resolved a bug that caused the redimensioning of a connector to be journaled incorrectly from Gridgen.

SPR 4793

When imported from an IGES file, some database planes and surfaces were translated and caused problems during connector creation. Logic has been modified to correct how Gridgen interprets these database entities during import.

SPR 4787

Setting unstructured baffles BC to Wall was causing error messages and CFX-5 export failure in Gridgen. Logic has been added to correct this problem.

SPR 4783

Creating periodic domains then bringing them into Domain Modify was causing their periodic links to be erased. Logic has been modified to correct this problem.

SPR 4773

Resolved a bug in which Gridgen was unable to export files for WIND-US grids containing prisms.

SPR 4769

Resolved a bug in which Gridgen's translational prism extrusion created the extrusion domains, but failed to save the prism block.

SPR 4730

Fixed a bug which caused an error message whenever a database line was intersected with a plane.

SPR 4726

Resolved a bug which was keeping the spacing constraint (del s) on a connector from being updated during the execution of a script.

SPR 4709

When merging connectors during block creation, Gridgen was deleting the domains belonging to those connectors. Logic has been added to fix this problem.

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SPR 4695

Gridgen was failing to pick up a user's prescribed QuickSave filename in the Gridgen initialization file. Logic has been modified to correct this problem.

SPR 4686

Resolved a scripting bug in which setting the end spacing of a connector's subconnector would cause the script to fail.

SPR 4684

Fixed a scripting bug that caused true intersections to fail if the -los option was not specified for gg::dbIntersect.

SPR 4676

The ID number of database groups were not being returned when gg::dispPick was used to select those entities during script execution. Logic has been added to correct this problem.

SPR 4675

Resolved a bug in which the -s_max option for gg::blkExtrusionAtt could not be set to 0.0.

SPR 4619

Fixed a bug which erased the database entity information present in the Gridgen Browser window when average points were kept from database point creation.

SPR 4611

The Glyph manual page for gg::conJoin incorrectly described the numbering of a connector formed from a join. This section has been updated to more accurately reflect the number that occurs.

SPR 4573

A bug has been resolved which caused a grid imported into V15.06 to have one less block than if imported into V15.05.

SPR 4570

Logic has been added to Gridgen to help correct an issue with the calculation of normals for VSAEROhybrid input files.

SPR 4561

A bug has been fixed which caused Gridgen V15.06 to terminate while importing a particular IGES file. This file did not cause previous versions of Gridgen to terminate.

SPR 4467

Fixed a bug that caused the DB Intersect command to function incorrectly when used with ill-formed database surfaces.

SPR 4466

Resolved a bug which caused Gridgen to take much longer to copy blocks in V15.05 than in V15.04.

SPR 4369

A bug has been resolved which caused Gridgen to create a corrupt unstructured block volume.

5.15 Gridgen Version 15.06 - Release Date: December 2004

New features included in Gridgen V15.06 are listed below:

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1. Gridgen is now supported on MacOS X for Apple Power Mac G5 platforms.
2. An extrusion boundary condition has been added that allows a hexahedral or prism block to be extruded while its boundary is constrained to a pre-existing connected structured domain in the grid.
3. Gridgen now allows the use of mixed extrusion types using From Cons domain extrusion or From Doms Block extrusion. This provides users with the ability to:
   - simultaneously create extruded domains, each with a different extrusion type, or
   - simultaneously extrude hexahedral and prism blocks.
4. Improvements have been made in the manner in which Gridgen creates unstructured domains on highly curved shell entities.
5. The mouse sensitivity is now based on movement rate which should allow users more control over mouse sensitivity for machines with faster graphics cards.

The following is a listing of technical issues resolved in V15.06:

SPR 4494

Fixed a problem involving the export of pyramids to NSAERO. Logic has been added to ensure pyramids are exported correctly.

SPR 4479

Resolved bug in which a database model was displayed in the lower right corner of the Display window and could not be centered.

SPR 4457

Gridgen was not checking appended grids for identical block names for cases in which the appended and original blocks did not touch. Logic has been added to check for these cases.

SPR 4378

Journaling the creation of a database constrained connector that was constrained to a curve was causing Gridgen to abort out of journaling mode. Logic has been added to fix this problem.

SPR 4366

Resolved a bug which was resetting the boundary conditions for all blocks during an extrusion instead of just resetting the boundary conditions for the extruded blocks.

SPR 4344

Fixed a bug that was causing the types of database entities created from the script Dom2DBEntity.glf to be different depending on how many domains were selected for conversion.

SPR 4335

Fixed a bug that caused problems when trying to start the NCR server on a SuSe Linux machine.

SPR 4331

Resolved a problem which was causing the import of Gridgen database (.dba) and restart (.gg) files to take much longer than normal on Windows 2000 machines.

SPR 4330

Logic was added to correct a bug that was causing Gridgen to split an STL file into many entities on import when no default split angle was specified.

SPR 4327

Fixed a bug in which Gridgen crashed when joining blocks, then domains, in a certain order.

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SPR 4294

Resolved an issue that caused Gridgen to crash while importing an IGES file.

SPR 4276

Connector modifications in which the connector endpoints did not change were causing the Maintain Linkages prompt to appear. Logic has been added to correct these cases.

SPR 4271

Fixed a problem that was causing bitmap images exported from Gridgen on Linux workstations to become corrupted.

SPR 4266

Resolved a bug that would not allow a user to export a self-connecting structured block to FLUENT or CFX-5.

SPR 4253

Resolved a bug that caused Gridgen to crash when trying to import a restart file associated with a composite database file containing an isolated empty layer.

SPR 4241

Gridgen was found to crash when trying to re-extrude a copy of an extruded structured block whose computational coordinates were aligned differently from the original. Logic has been changed to fix this problem.

SPR 4213

Fixed an issue in which the interior of an unstructured domain was not being properly updated after relatively large modifications to its connectors.

SPR 4178

Resolved a bug which was causing poor results for a domain that was being copied then rotated. This problem occurred for both normal copying and rotation as well as for a periodically copying it through rotation.

SPR 4118

Fixed an issue that was causing the block unstructured solver to fail in initializing a volume.

SPR 3752

Resolved a problem that caused the zoom box to be sluggish and unresponsive for large grids.

5.16 Gridgen Version 15.05 - Release Date: September 2004

New features included in Gridgen V15.05 are listed below:

1. A 32-bit version of Gridgen is now supported on the HP-UX 11 (Itanium) platform.
2. Gridgen now supports the import of UG NX2 files via the Unigraphics Native CAD Reader. *Note:* The Unigraphics part file reader is an optional product.
3. Gridgen now supports the import of Pro/ENGINEER Wildfire2 files via the PRO/E Native CAD Reader. *Note:* The Pro/ENGINEER file reader is an optional product.
4. A new utility script is available (`DbImportPoints.glf`) that allows a user to import x,y,z data from a segment file.
5. A new utility script is available (`LayerColorManager.glf`) that allows a user to assign a color from the color palette to a layer and its entities.
6. A new utility script is available (`ConBreakPtAtPercentArc.glf`) that allows a user to add a

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breakpoint to selected connectors at a percentage of the arclength from either end of the connector.

7. A new utility script is available (`ConSplitAtIsect.glf`) that allows a user to split two connectors at their approximate intersection point.
8. A new utility script is available (`DbDisplayManager.glf`) that allows users to select DB entities based on their type and modify their layer, enabled/disabled, and display settings.
9. Users can now extend the functionality of Glyph scripting by linking in their own C routines (compiled as dynamic libraries). Files are available within *gridgen_home_path*/hw/examples/custom/ called README_UNIX.txt and README_WIN32.txt that explain how to link and compile user libraries for the respective platforms.
10. Two Glyph commands have been added that allow the layer manager panel to be displayed and layers selected during script playback.
11. A new chapter on the basics of Glyph Tcl/Tk scripting has been added to the Glyph Reference Manual.

The following is a listing of technical issues resolved in V15.05:

SPR 4165

Resolved a bug that was causing periodic domains to become corrupted after connector redimensioning.

SPR 4161

Fixed a bug which allowed non-visible grid entities to be pickable during domain and block assembly.

SPR 4157

When joining two blocks in a particular order, the resulting joined block exhibited problems with dimensions. Logic has been added to deal with this scenario.

SPR 4155

Resolved an issue which was causing Gridgen to crash when importing a particular restart file.

SPR 4151

Resolved a bug in which Gridgen failed to merge multiple .dba and .gg files together during import.

SPR 4144

The journaling of gg::domSplit was modified so that a script would not fail if only one domain resulted from a domain split.

SPR 4127

Resolved a bug that was causing the export of FLUENT and PLOT3D ASCII files to have some exponents written out incorrectly.

SPR 4116

Modified the description of the COBALT analysis software package to bring it up to date.

SPR 4113

Fixed a memory allocation error message that appeared when exporting analysis data to FLUENT so that it reports the number of bytes that are required.

SPR 4108

The Glyph manual page for gg::segAddControlPt was missing the -force flag. A description has been added for this flag.

SPR 4106

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Fixed a bug which was causing import problems for certain IGES files.

SPR 4102

Shell entities that were disabled and in layers that were off were being shown in browser lists as being available for picking. Logic has been added to correct this problem.

SPR 4101

Glyph manual pages for `gg::gridImport` were corrected to explain which import options corresponded to particular import flags.

SPR 4085

Fixed a bug which was causing the elliptic solver to crash when run on structured blocks with one cell in the k direction.

SPR 4069

Resolved a bug which was preventing Gridgen from exporting an unstructured block with a free-floating baffle.

SPR 4059

Resolved a bug which appended _01 to any domain or connector group when a grid was re-imported and overwrote the previous grid system.

SPR 4045

Resolved an issue which caused error messages to appear and export to fail when writing a 2D structured block to CGNS-STRUCT.

SPR 4034

Resolved a bug that was causing problems with boundary conditions and interblock boundaries during NSAERO export.

SPR 4014

Fixed a problem which caused corruption in a block when it was split along a pole connector.

SPR 3877

When creating connectors on a particular trimmed surface using the On DB Entities command, the connectors were being created off the surface. Logic has been added to fix this issue.

SPR 3803

Resolved a bug which was causing Gridgen's diagnostic measures of equi-angle and equi-volume skewness to be slightly off the correct values.

SPR 3642

A CATIA V4 file containing composite curves could be imported into Gridgen V14.05 but not V15. Logic has been added to handle this scenario so that the data will import correctly.

5.17 Gridgen Version 15.04 - Release Date: May 2004

New features included in Gridgen V15.04 are listed below:

1. Support for the STAR-CCM+ analysis software package has been added.
2. A new utility script is available which allows users to import Kreila geometry files (KreilaImport.glf). The new script is available in the gridgen_home_path/utils/ directory.
3. Logic has been added to make unstructured triangulation more robust in Gridgen.

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4. Certain layer operations may now be performed on individual or multiple layers via a right click menu in the Layer Manager panel.

The following is a listing of technical issues resolved in V15.04:

SPR 4039

Resolved a bug which caused Gridgen to crash when creating database constrained connectors on shell entities.

SPR 4033

Analysis data exported via WIND-US would not import correctly into WIND-US. The export has now been fixed so that the appropriate information is written out.

SPR 4032

NSAERO double precision export was exporting single precision instead of double. Logic has been modified to fix this problem.

SPR 4020

Fixed a problem in which **Pick: In Box** and **Pick: On Box** could not be used in selecting domains to apply BCs.

SPR 4012

Resolved a bug that would not allow BCs to be set on a block created with **AutoSave: Face** enabled.

SPR 4009

Fixed a bug in which both sides of an unstructured baffle were not meshed even though the **Mesh Both Sides** option was enabled.

SPR 4007

Gridgen was crashing after playback of a script in which a segment file had been imported twice, all its entities deleted, then the file was imported once more. Logic has been added to fix this bug.

SPR 3996

Resolved a bug that did not allow users to use Shift and the right mouse button to pick some connector points.

SPR 3981

Fixed a journaling problem that caused a change in the distribution type of a connector to be incorrectly journaled.

SPR 3980

Fixed a bug that caused folded triangles to form in an initialized unstructured domain.

SPR 3946

Resolved a bug that would not allow a domain to be mirrored while using large connector and node tolerances.

SPR 3944

Fixed a problem in which the number 2 could not be entered as a split location for a structured block when using **Type In ?-plane**.

SPR 3943

Resolved a bug that caused Gridgen to crash when exporting analysis data to EXODUS II.

SPR 3914

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Resolved a bug which was causing the import of files into V15.02 and V15.03 to take much longer than in previous versions.

SPR 3817

Fixed a problem which was causing poor triangles to be formed along a the edge of a domain created on a linearly swept surface.

SPR 3792

Resolved a bug in which a very small grid point tolerance was causing a slowdown in connector operations

5.18 Gridgen Version 15.03 - Release Date: March 2004

New features included in Gridgen V15.03 are listed below.

1. Gridgen now supports both single and double precision Unstructured WIND export.
2. A new merge entities command has been added called **Replace Connectors**. This function allows users to select two connectors, of which the first selected connector will be replaced by the second connector.
3. Gridgen now supports double-precision Cobalt export.
4. Memory requirements for Cobalt export have been reduced.
5. The hot keys for Zoom-In and Zoom-Out are now the F5 and F6 keys respectively.

The following is a listing of technical issues resolved in V15.03:

SPR 3928

Resolved a bug involving Gridgen's startup script that caused an xmodmap error message to appear when attempting to start Gridgen.

SPR 3867

Resolved a bug that was causing the gg::dispPick POINT mode to work incorrectly.

SPR 3865

While importing a VRML file on an HP-UX workstation, Gridgen was crashing due to insufficient memory. This problem has been resolved.

SPR 3862

Fixed a bug which was causing Gridgen to crash on SGI workstations with a display resolution of 1600 x 1200 when trying to export RGB image files.

SPR 3851

Resolved a bug that caused Gridgen to crash when importing a particular IGES file.

SPR 3831

Resolved a bug in which point- and line-singular pole domains were not being initialized properly for structured grids.

SPR 3821

The manual pages for the Glyph commands gg::dbSplit, gg::dbSurfBegin, gg::dbSurfAddEnt, and gg::dbSurfEnd needed minor updates. These manual pages are now current.

SPR 3814

Upgrading from Sun Solaris 8 to Sun Solaris 9 was causing startup issues with the Gridgen FLEXlm server.

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A script has been developed to handle this issue.

SPR 3808

The manual pages for the commands gg::domJoinAddDom, gg::domJoinBegin, and gg::domJoinEnd were missing from the Glyph Reference Manual. These manual pages have been added.

SPR 3784

Using On DB Ents to create unstructured domains on surfaces of revolution resulted in Gridgen creating empty domains on those surfaces. This issue has been resolved.

SPR 3772

Exporting a grid with custom volume conditions to the ASW FLUENT was causing Gridgen to crash. Logic has been added to resolve this problem.

SPR 3754

Resolved a bug which caused grids exported for the ASW CFD++ to appear to have negative volumes within CFD++.

SPR 3737

Fixed a bug which caused Gridgen to have a segmentation violation when running the elliptical smoother on periodic domains with floating BC's.

SPR 3731

Extruding a block with the DB Constrained boundary condition past the edge of the database was causing Gridgen to crash. Logic has been added to resolve this issue.

SPR 3725

Applying Fluent's Porous Jump BC's in grids which used multiple VC's was causing Gridgen to export corrupt Fluent .cas files.

SPR 3691

Gridgen's block equi-angle skewness examination function was not appropriately showing poor quality cells. Logic has been added to improve this functionality.

SPR 3550

Workstations running Linux Redhat V9.0 reported warnings of incorrectly built binary files when the FLEXlm server was started. FLEXlm server has been upgraded to V9.2 to correct the error messages.

SPR 3031

Resolved a problem in which points in block connection interfaces were mis-matched after structured blocks were run through the structured block solver.

5.19 Gridgen Version 15.02 - December 2003

New features included in Gridgen V15.02 are listed below.

1. A Unigraphics Native CAD Reader is now available for the import of Unigraphics versions NX, 18, 17, 16, and 15 part file formats. *Note:* The Unigraphics part file reader is an optional product.
2. Double precision NSAERO export is now available in V15.02.
3. A Merge Entities menu has been added that contains all node, connector, and node/connector merging capabilities. This menu can be found within the connector commands, domain assembly, and face assembly menus. While in the new menu, all connectors are color coded in the Display window based on the number of times they are used within the grid.

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Notes about Upgrading to V15.02:

- A slight structural change occurred in Gridgen's documentation from V15.00 to V15.01. In the gridgen_home_path/doc/pdf directory, there are now four new directories which contain the latest PDFs. You will need to delete the old pdf files (gridgen_home_path/doc/pdf/userman.pdf, gridgen_home_path/doc/pdf/glyph.pdf, gridgen_home_path/doc/pdf/tutorial.pdf, and gridgen_home_path/doc/pdf/relnotes.pdf) and use the new PDFs in the userman/, glyph/, tutorial/, and relnotes/ directories for reference.
- Some of the FLEXlm license management files have been upgraded for the Linux platform for V15.02. Gridgen's license server will need to be stopped prior to upgrading, then restarted once the upgrade is complete.

The following is a listing of technical issues resolved in V15.02:

SPR 3656

Gridgen's tetrahedral mesher failed to generate the interior volume cells of a block due to the mesh not being properly connected, but generated a misleading error message during failure. The error message has since been revised to be more indicative of the real problem.

SPR 3633

Corrected a problem with the Glyph command gg::domReport that was causing it to report incorrect values for the J size ratio.

SPR 3632

Fixed a bug which caused the export of block faces in PLOT3D, unformatted double precision format to be incorrect.

SPR 3595

Resolved a bug that allowed a block re-extrusion (with all Jacobian stop criteria selected) to proceed a number of steps past the point at which cells with bad Jacobians occurred.

SPR 3565

Domains belonging to blocks that were enabled were being displayed as disabled in the domain enable/disable blackboard. Logic has been added to correct this problem.

SPR 3556

A bug was fixed in which the view extents box was not being correctly calculated for database entities belonging to a group.

SPR 3553

Selecting Edit Dspla Fac for specific composite database and gridgen restart files was causing a segmentation violation in Gridgen. This problem has been fixed.

SPR 3550

Errors printed out when starting the Gridgen license server on a Linux Redhat 9.0 workstation have now been fixed with an upgrade to the latest version of FLEXlm (Version 9.2).

SPR 3515

A problem was resolved in which composite database and grid files exported in V14.04 were causing Gridgen V14.05 and up to hang during import.

SPR 3463

Removed a reference to the command "Pick an Unlinked Con" from the Gridgen User Manual.

SPR 3117

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Import of a very large IGES database was causing Gridgen to crash on an IBM AIX workstation. This problem has been fixed.

SPR 3038

The CFDSHIP-IOWA CFD solver boundary conditions were found to be out of date in Gridgen. The boundary conditions for this analysis software have now been updated.

SPR 2761

A problem was resolved in which importing multiple database files and multiple grid files caused a segmentation violation within Gridgen.

SPR 2553

Trying to import a gridgen restart file into Gridgen on a workstation running Redhat Linux 7.2 was causing numerous error messages. This problem has been fixed.

SPR 1944

Resolved a bug that was causing unnaturally high concentrations of tetrahedral cells in the interior of unstructured block volumes.

SPR 1212

Examining a very large data set on an IBM AIX platform workstation was causing Gridgen to crash. This problem has been fixed.

5.20 Gridgen Version 15.01 - September 2003

Version 15.01 contains several new features that are outlined below. Please be aware that importing Gridgen restart (.gg) and database (.dba) files from V15.01 and later maintenance releases into Gridgen V15.00 will not be possible due to a format change in Gridgen V15.01 restart and database files.

1. Gridgen now supports the import of Pro/E Wildfire files.
2. Gridgen's Native CAD Readers (NCRs) are now supported on the IBM AIX platform.
3. A boundary condition has been added to Gridgen's hyperbolic and normal extrusion attribute menus which constrains the extruded grid's boundaries to the boundaries of selected database surfaces.
4. Options have been included to allow the creation or modification of database constrained connectors that use the underlying database surface(s) for the determination of connector grid point dimensioning and distribution.
5. A toggle has been added to the Display Commands menu that controls whether or not disabled grid entities are displayed. When toggled off, disabled grid entities are not displayed except for when in the enable/disable selection modes.
6. A new Glyph command has been added which provides the capability to image pan, zoom, and rotate while a glyph script is running.
7. A new Glyph command has been added which allows users to momentarily pause a running script to pick database, connector, domain, block, or breakpoint entities. After the selection of entities is complete, the script resumes running.
8. The number of custom boundary conditions (BCs) and volume conditions (VCs) that can be created in Gridgen has been increased to 500.
9. The memory requirement for the export of large grids for CFD++ now takes considerably less memory.

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10. Utility scripts have been added to the gridgen_home_path/utils directory. These scripts are provided for demonstration purposes and are not supported by Pointwise, Inc. Use or modification of these scripts are at the users discretion. Information on these scripts and others is available in the file *gridgen_home_path*/utils/README.txt. Scripts that have been added and a brief description are included below:

    - *ConCircleCenterandRadius.glf* - Displays an interface which is used to create a two-connector circle based on circle center coordinates, radius, and dimension. Connector dimension is split evenly over the two connectors.
    - *ColorPalette.glf* - Displays an interface in which users can select or modify the colors that will be used in Gridgen for the wireframe and solid/shade color palettes.
    - *ColorDombyDB.glf* - Displays an interface in which users can assign a solid/shade color for three different levels of domain-database associativity (domains that have all points, some points, and no points on a database entity). Once the colors are assigned to the three levels of associativity, the Gridgen Display window is updated to use the assigned colors. Users can select the "Preview" button to see what the chosen colors will look like on their model before accepting the changes.
    - *Dom2DBEntity.glf* - Allows users to select domains to be converted into database entities.
    - *CenterRotationAxes.glf* - Displays an interface in which users can manually specify the origin of the rotation axes.
    - *BrickBlock.glf* - Creates a rectangular block based on coordinates and dimensions entered by user. The two points the user must define correspond to the computational minimum and maximums of the block. By default, dimensions of the block (i, j, k) are set to 10. If other dimensions are desired, they must be specified within the script interface.
    - *Y+ConnectorSpacing.glf* - Sets grid y+ spacing based on freestream information provided by user. User must specify freestream velocity, density, kinematic viscosity, boundary layer origin, and/or the y+ value desired. Once freestream information has been specified, connector ends which will have y+ spacing applied must be selected.

The following is a listing of technical issues resolved in Version 15.01:

SPR 3509

Resolved a problem in which the UNIX/LINUX LICENSE_CONTROL.sh script was not reporting the Gridgen host ID for servers with more than one host ID.

SPR 3456

Hyperbolic extrusion from an edge on a particular grid using a geometric growth rate of 1 was causing a core dump (floating point exception) in Gridgen. This problem has been fixed.

SPR 3129

Import was causing the interior points of a unconstrained pole within a Gridgen quicksave file to be projected onto a nearby database surface.

SPR 3122

The description of the -grid_angle flag for the Glyph commands domExtrusionAtt and blkExtrusionAtt has been corrected to list the appropriate range of values.

SPR 3120

Importing a structured grid created on periodic (or looped) database entities was causing grid points to be pulled off of the appropriate database entities. Logic was added to rectify this situation.

SPR 3119

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After placing a domain in a domain group, then splitting the block that domain belonged to and splitting the domain as a result, the group identity of the resulting domain halves were improperly set.

SPR 3103

Resolved a problem in that was causing segmentation violations in Gridgen when examining a block.

SPR 3092

Running the elliptic solver on a domain containing periodic pairs was breaking the periodicity of the connector pairs. The logic causing this problem has been repaired.

SPR 3090

When scripting then copying of a connector and a subsequent redimensioning, neither the Glyph dimensioning nor redimensioning commands were journaled. The logic that caused this omission has been corrected.

SPR 3073

When comparing the same grid exported from Gridgen in V14 and V15, the file size of the V15 restart (.gg) files were twice as large as the V14 restart files. Export routines have been modified to fix this problem.

SPR 3066

Resolved a problem in which applied interval shading for a database surface was not retained after the creation of a connector on the surface.

SPR 3065

Users with German keyboards were unable to enter the symbols '[' and ']' in text input mode. Hot keys have been added to allow the entry of these and other symbols used in text input.

SPR 3032

Resolved a bug which caused Gridgen to have a segmentation violation when importing a specific IGES file.

SPR 3023

Setting the ConSplit angle to 45 degrees for shell entities was causing empty domains to be created. Logic has now been added to account for this scenario and prevent this problem from recurring.

SPR 3022

When journaling in Gridgen, the Remove/Add Ctrl Pt at O button was not available. This capability has now been added for journaling.

SPR 3016

Fixed a problem that was causing error messages when trying to pass an empty domain to the domain unstructured solver in a Glyph script.

SPR 3014

When copy a database group for translation or rotation, groups were copied and placed incorrectly. Logic has been modified to fix this problem.

SPR 3012

Glyph scripts that contained the iterations flag for the unstructured block solver were not actually changing the block solvers number iterations. The Glyph logic which allowed this to happen has been modified.

SPR 3004

When journaling block face creation that included unstructured domains, erasing a domain that had been selected caused errors when the journaled script was executed. Logic has been added to correct this problem.

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SPR 2996

Fixed a database file import problem caused by database layer names with spaces in them.

SPR 2995

A difference in the way Gridgen was compiled for Linux and Windows platforms was causing problems with extra connectors and untrimmed surfaces when generating a grid on a IGES database. This has been fixed.

SPR 2994

A CATIA V4 model file failed to import into Gridgen on a Linux platform but successfully imported into Gridgen on a Windows platform. Native CAD Readers libraries have been updated to correct this problem.

SPR 2991

A problem occurred when LSQ Fit was applied to a connector with a database end node. The application of LSQ Fit caused the database constrained end node to be pulled off the database. Logic has been added to prevent this problem from recurring.

SPR 2984

For CGNS-Structured export, boundary condition types were being written out as NULL. This has been resolved so that Gridgen will write out one of the four CGNS Structured BC types supported (“BCInflow”, “BCOutflow”, “BCWall”, “BCSymmetryPlane”). All other BC types will be written out as BC type “UserDefined”.

SPR 2983

When importing a CATIA the Native CAD Reader had ceased to display the SHOW and NOSHOW status for database entities. This has been fixed.

SPR 2960

Gridgen’s NSAERO export was incorrectly linking a domain to itself for a particular grid. Logic has been added to resolve this problem.

SPR 2959

Fixed a bug that was causing the wrong number of unstructured faces to be written in Fluent export file headers.

SPR 2958

The smoothed domain was not being retained after smoothing a domain that had an edge with an orthogonality boundary condition. Tolerances that were causing this problem have been adjusted.

SPR 2946

After receiving reports of problems using Gridgen in conjunction with an ATI Rage graphics card, a section was added to the Gridgen Hardware Requirements to document graphics cards with known Gridgen compatibility problems.

SPR 2943

When trying to journal an internal edge for a domain, Gridgen was not correctly journaling the reorientation of the internal edge. Glyph commands have since been changed and one added to correct this issue.

SPR 2941

Fixed a problem with the Auto Merge option of the On DB Entities command for domain creation.

SPR 2933

Gridgen would not allow users to create periodic connectors that touched along an axis of rotation. This restriction has now been changed to allow this behavior.

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SPR 2885

Fixed a problem in the baffle detection logic in STAR-CD export that caused failures.

SPR 2874

Improved postscript export of pictures from Gridgen. Problems had been encountered where postscript images exported from Gridgen were different from bitmap, JPEG, and PNG image exports.

SPR 2870

Resolved a bug which caused Gridgen to have a segmentation violation when importing a specific IGES file.

SPR 2864

When a PLOT3D file had a .dat extension and you tried to import it as a database entity, Gridgen assumed it was a segment file (their default extension is .dat) and failed. Error checking was added to capture this.

SPR 2860

Fixed a problem with the identification of mesh singularities when exporting data for Fluent that caused failures.

SPR 2856

The tolerances used to determine the default triangulation of new database surfaces were not small enough to always produce an appropriate triangulation. These tolerances have been adjusted.

SPR 2769

When Reset Attributes was selected in the Extrusion Set Attributes menu, the Stop Criteria in the Extrusion menu were reset as well. Logic has been added to Gridgen to prevent this from occurring.

SPR 2748

Corrected file extension and data output of VSAERO export files.

SPR 2635

When joining two annular half-circle unstructured domains, Gridgen assumed the resulting joined domain contained a branch cut segment which signaled a re-initialization of the domain. Further checking Gridgen performed on the domain caused it to be emptied. This problem has been fixed by revising the topology reconstruction logic for joined domains.

SPR 2159

A problem was resolved in which a STEP file containing the CONFIG_CONTROL_DESIGN (AP203) schema would not import properly into Gridgen.

SPR 1488

When importing raw blocks from a Plot3D file, Gridgen was sorting the blocks in the reverse order from how they were exported. The logic which caused this issue has been fixed.

5.21 Gridgen Version 15.00 - June 2003

Gridgen Version 15 features three suites of tools that address specific meshing challenges. For the management of large and complex databases and grids, a CAD-style layer manager, pick masks, and grid groups have been added. In order to more closely couple Gridgen with your analysis software, support for volume conditions (i.e. material IDs) has been added, including the ability to sort cells by VC type upon export. Also, Gridgen's Native CAD Readers have been made faster and more robust. All of Gridgen Version 15's new features are described in the following sections, sorted by functionality.

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5.21.1 Setting Defaults and Tolerances

Defaults for the database pick masks may be set using the **DB Pick Mask** command.

5.21.2 Graphical User Interface

Pick masks may now be applied to database entity selection using the **DB Pick Mask** command. You use pick masks to limit the types of database entities that are pickable. For example, you may want to only pick surface entities, or only circular arcs. No matter what is visible in the Display window, pick masks ensure you will only pick what you want to pick. The **DB Pick Mask** command is available in every database entity selection Browser and in the SET DEFAULT VALUES menu.

A new image manipulation tool called Zoom to Screen Extents has been added. Using this tool (***U*** hot key) repositions the image so that it fills the Display window in its current orientation (it is centered and zoomed but its rotation is not changed).

Database trimmed surfaces may now be drawn with iso-parametric lines (Isolines render mode in the DISPLAY ATTRIBUTES menu).

5.21.3 Importing and Exporting Files

Gridgen's Native CAD Readers for Pro/ENGINEER, CATIA V4, and STEP AP203 have been reworked for improved robustness and much faster read times. The Pro/E reader has been extended to provide support for versions 2000 and 2001 and the STEP reader now supports extensions to the AP 203 and AP 214 schema.

Gridgen now keeps track of the names of database files on which a grid has been generated. If you import a Gridgen (.gg) file without its database files, Gridgen will provide a warning and list the names of the missing files.

5.21.4 Layer Manager

A CAD-style layer manager has been added for database entities (**Layer Manager** button in the MAIN MENU and ***M*** hot key). The layer manager may be used at most any time while running Gridgen and appears in a new window. By assigning each database entity to a layer, you may easily control the visibility (and usability) of layers and the entities in them. For example, you may include all of the database entities for an aircraft's wing in one layer. Then when it is time to work on the wing mesh you can use the layer manager to make only that layer visible. The layer manager includes the ability to move entities from layer to layer, name layers, turn on and off the display of individual layers, create layer sets for easy recall, save layer data to Gridgen's composite database file format, and read layer information from CAD files. The **Assign Layer** command in the DATABASE COMMANDS menu is used to assign entities to specific layers.

5.21.5 Creating Database Entities

The **Coons** button in the DB CREATION menu lets you create a NURB surface in the database by defining its perimeter. It is useful for filling holes in the database model. The **Auto** toggle next to the **Coons** button indicates whether you will create the Coons surface manually (**Auto** toggled off) by picking in sequence the curves around the perimeter, or automatically (**Auto** toggled on) by picking several entities and letting Gridgen make as many surfaces as it can find from the selected data.

All of the database surface creation tools have been enhanced so that the boundaries of surfaces are now available for use as definition curves (e.g. axis, generatrix, etc.) during surface creation.

5.21.6 Creating Connectors

No changes.

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5.21.7 Creating Domains

No changes.

5.21.8 Creating Blocks

No changes.

5.21.9 Grid Methods for Connectors

No changes.

5.21.10 Grid Methods for Structured Domains and Blocks

The elliptic PDE solver is now applied to a copy of the selected domains and blocks. The original grids are not replaced until you exit the solver. If you abort out of the solver, the original grid is recovered.

The elliptic PDE solver for both domains and blocks has been sped-up by roughly a factor of five.

The axis for polar TFI may now be defined interactively rather than just by type-in.

5.21.11 Grid Methods for Unstructured Domains and Blocks

The unstructured solver is now applied to a copy of the selected domains. The original grids are not replaced until you exit the solver. If you abort out of the solver, the original grid is recovered.

The unstructured domain solver attributes for minimum and maximum cell size (**Min Size** and **Max Size** in the SELECT GRID CONTROL PARAM menu) have been changed from area to edge length. This change will make it easier to achieve the desired effect by simply specifying an edge length rather than having to compute the area of a triangular cell.

5.21.12 Grid Extrusion Methods

A **Re-Extrude** command is available within the MODIFY DOMAINS and MODIFY BLOCKS menus. You may select a block, for example, that was created by extrusion and **Re-Extrude** will allow you to continue the extrusion process with all the functionality of **Extrude** in the Create menu: step forward, step backward, change attributes, etc.

5.21.13 Modify

A new capability has been added to the **Split** command for database curves. The command **Closest O via Pick Point** lets you move the cursor to a point on the curve that is closest to another point that you pick. This is useful for splitting the curve using a point generated by a closest approach intersection (see below).

The **Join** command for database curves now detects whether the joined curve is slope continuous and if it is not you are given the option to smooth the curve to a tolerance that you specify. If the joined curve is to be used to create a database surface, the surface creation algorithms work much better with slope continuous curves.

5.21.14 Miscellaneous

You can create groups of connectors, domains, and blocks with the **Group Define** command in the CONNECTOR COMMANDS, DOMAIN COMMANDS, and BLOCK COMMANDS menus, respectively. For example, you can create a group consisting of all the connectors on the symmetry plane or all the domains on the database. Then, whenever those entities are needed you can simply pick the group by its name which will appear at the top of the Browser instead of picking each individual entity.

The database **Intersect** command has been enhanced with the addition of Closest Approach intersections for curves. A database point entity is created on each of a pair of entities where they come closest to each

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other.

When you exit Gridgen, the software now checks to ensure that any changes you have made to the database have been saved to a composite database file. If the database has unsaved changes, you are notified and given the opportunity to export a database file.

5.21.15 Diagnostic Functions

New functions have been added to the **Examine** command for domains and blocks: equi-volume skewness and equi-angle skewness (**Skewness volume** and **Skewness angle** buttons, respectively).

5.21.16 Analysis Software Interfaces

Volume conditions (VCs) may now be applied to the cells on a block's interior using the **Set VCs** button in the ANALYSIS S/W COMMANDS menu. VCs are just like your solver's boundary conditions, but identify the type of cells within the block (for example, fluid-A, porous, solid). VCs are similar to material IDs in the structural mechanics field. If your selected Analysis Software supports VCs, the volume cells in your mesh may be sorted according to VC when they are exported to the solver's grid file.

CFD boundary conditions (BCs) are now permanent and will stay with a domain even after the block on which they are set is deleted. So if you create a block, assign boundary conditions, but then delete the block, the boundary conditions are not lost. When you recreate the block, its boundary conditions will be recovered from its domains.

Interfaces to the PHOENICS, NSAERO, VSAEROhybrid, and double precision CFX and TASCflow CFD solvers are now available.

5.21.17 Glyph

The scripting language now covers virtually every command in the GUI.

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